

THE CONNECTION BETWEEN BROAD $H\beta$ RED ASYMMETRY AND GRAVITATIONAL REDSHIFT IN AGN TYPE 1

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Here we investigate connection between red asymmetry of the broad $H\beta$ emission lines and gravitational redshift for the sample of 97 Type 1 Active galactic Nuclei (AGN). The spectra of these objects were obtained from SDSS DR12, with respect to following characteristics: wide range of object luminosity and remarkable red asymmetry of the broad $H\beta$ emission line profiles. Also, we ensured to include in the sample only objects with the sigma (σ) value of host galaxy stellar component estimated in the literature. Since the spectral parameters, as the full width at half maximum (FWHM) of the broad $H\beta$ and the σ of stars in a host galaxy, are indicators of the mass of a super-massive black hole nested in the very center of an AGN, we wanted to explore if there is correlation of these parameters with the broad $H\beta$ red asymmetry, which is expected if the red asymmetry is related with the gravitational redshift mechanism. We found a strong correlation of the broad $H\beta$ red asymmetry with the FWHM, and a weak correlation with the σ of stars. These results imply that the broad $H\beta$ red asymmetry is probably connected with the gravitational redshift.